Calcasieu Air Toxics Review

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Review of air toxics monitoring in Calcasieu parish. Results of the monitoring indicate that Louisiana ambient air standards are being met in Calcasieu parish. Contamination issues make a determination of acrylonitrile concentrations inconclusive.

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The Calcasieu Parish Air Monitoring Study was initiated in 2001 as a three-year voluntary cooperative between LAIA (Lake Area Industry Alliance), LDEQ (Louisiana Department of Environmental Quality) and USEPA (US Environmental Protection Agency).

Using computer modeling, the EPA selected five monitoring sites. LAIA provided $1.5 million to fund the monitoring of the five sites selected and LDEQ hosted a Web site for the posting of results. The EPA and LDEQ carried out oversight and auditing of the study, and site operation and data collection were handled by an independent contractor. The five sites were located in Vinton, Mossville, Westlake, Bayou D'Inde and Lighthouse Lane.

Over 90,000 air quality measurements were analyzed during the study. All but two samples met strict regulatory standards. The two samples that did not meet the standard were well below levels that would be considered a health concern. One was related to a self reported incident experienced by a member company and immediate steps were taken to address the situation. The second high sample was determined to be related to something other than industrial emissions.

Although the initial agreement has concluded, LDEQ continues to monitor at Lighthouse Lane and Westlake. These monitors follow the EPA protocol for regular sampling. Additionally, the LDEQ operates two episodic monitors at the Lighthouse Lane and Westlake sites. Episodic monitors collect 25-minute event samples whenever 10-minute time averages of total non-methane organic compounds (TNMOC) reach preset values(1.0 ppmC at lighthouse Lane; 0.8 ppmC at Westlake).

24-hour data from January 1, 2004 to September 30, 2009 at Lighthouse Lane and Westlake are summarized in Table 1 and Table 2, respectively. All of the regulated toxic air pollutants measured in Calcasieu parish meet the Louisiana toxic pollutant ambient air standards except for acrylonitrile at Lighthouse Lane. The concentrations of the compound in 2004, 2006, 2007 and 2008 at the site were slightly over Louisiana's annual standard (0.68 ppbv) because of sampler contamination. The exact reasons for contamination are not known, but the contamination appears due to plastic O-rings and rubber gaskets in the samplers or pumps.

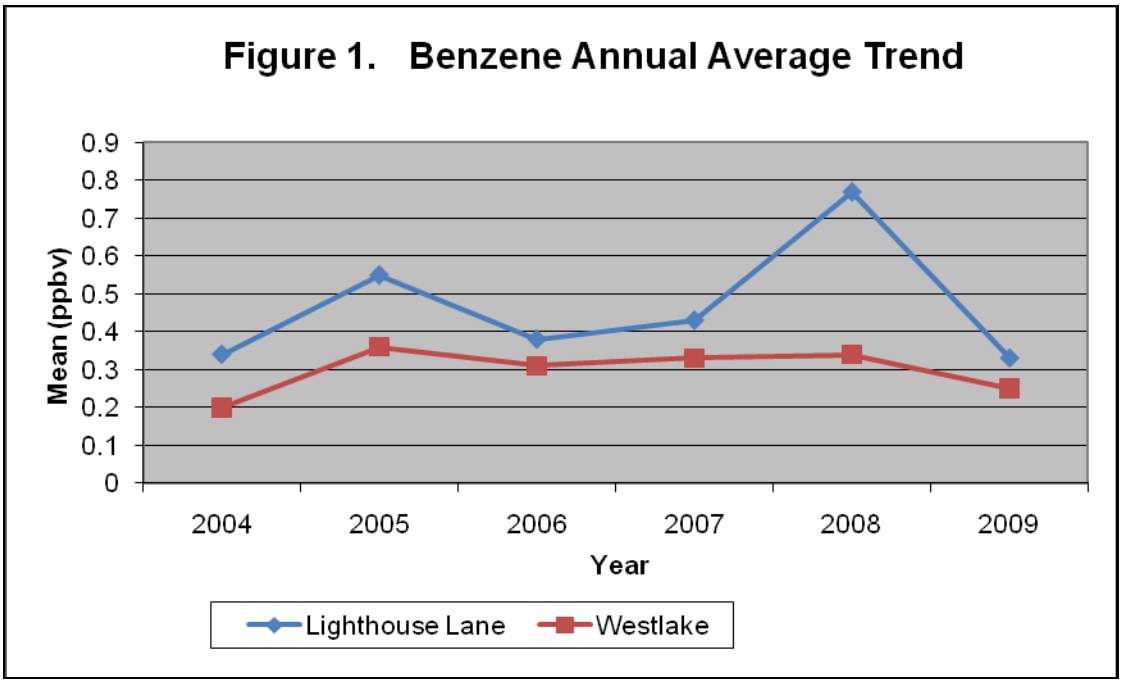
Table 1. Air Toxics Data (ppbv) for 24-Hour Samples at Lighthouse Lane Site

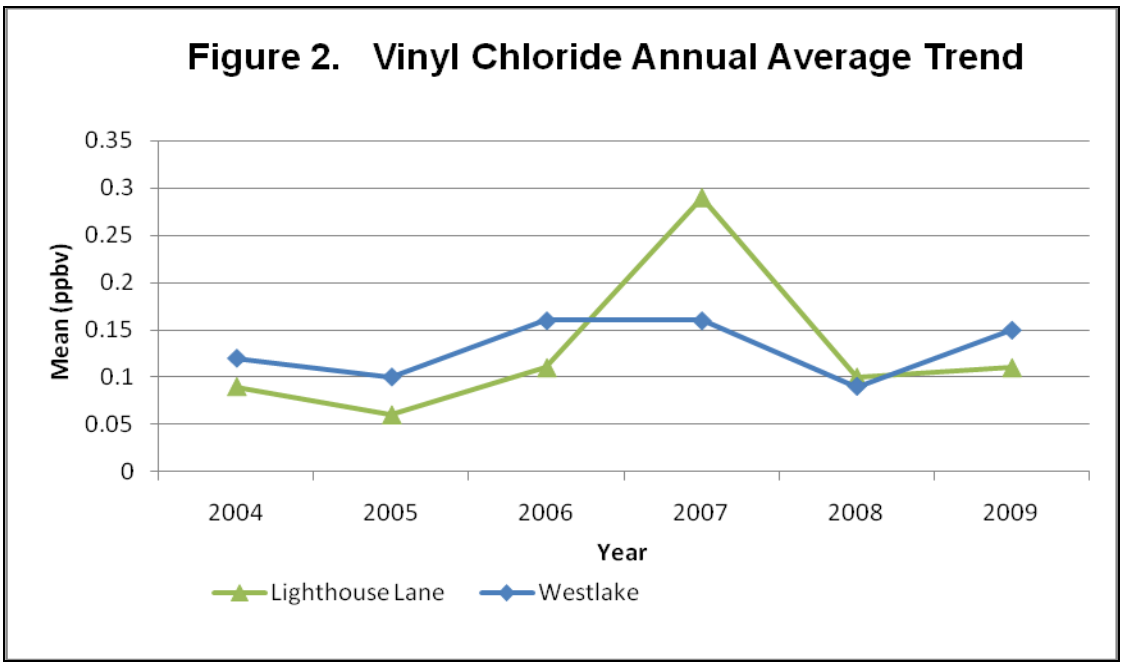
	2004		2005		2006		2007		2008		2009	
Compound \ Year	Mean	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean	Max.
1,1,1-Trichloroethane	0.12	1.38	0.08	0.74	0.08	0.90	0.08	0.40	0.05	0.39	0.07	0.41
1,1,2,2-Tetrachloroethane	0.00	0.04	0.00	0.01	0.01	0.11	0.00	0.03	0.00	0.01	0.01	0.10
1,1,2-Trichloroethane	0.00	0.04	0.00	0.11	0.01	0.30	0.01	0.12	0.00	0.03	0.01	0.11
1,1-Dichloroethane	0.01	0.11	0.02	0.25	0.03	0.50	0.03	0.47	0.01	0.13	0.03	0.39
1,1-Dichloroethene	0.00	0.08	0.00	0.02	0.01	0.35	0.00	0.04	0.01	0.39	0.01	0.11
1,2,4-Trichlorobenzene	0.01	0.18	0.01	0.08	0.05	0.19	0.04	0.09	0.02	0.12	0.01	0.09
1,2,4-Trimethylbenzene	0.02	0.10	0.04	0.19	0.11	3.40	0.03	0.11	0.08	3.07	0.04	0.22
1,2-Dibromoethane	0.00	0.00	0.00	0.03	0.01	0.04	0.01	0.04	0.00	0.01	0.00	0.08
1,2-Dichlorobenzene	0.00	0.03	0.00	0.01	0.00	0.03	0.00	0.03	0.00	0.02	0.01	0.08
1,2-Dichloroethane	0.24	2.95	0.34	3.66	0.16	1.03	0.50	2.93	0.67	6.78	0.39	2.11
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.00	0.09
1,3,5-Trimethylbenzene	0.01	0.05	0.01	0.06	0.04	0.97	0.01	0.05	0.03	0.97	0.02	0.07
1,3-Butadiene	0.04	0.35	0.15	2.68	0.08	0.43	0.13	1.98	0.13	1.67	0.18	0.89
1,3-Dichlorobenzene	0.00	0.02	0.00	0.02	0.00	0.03	0.00	0.01	0.00	0.02	0.01	0.10
1,3-Hexachlorobutadiene	0.01	0.13	0.01	0.07	0.03	0.08	0.03	0.13	0.02	0.25	0.01	0.10
1,4-Dichlorobenzene	0.00	0.02	0.01	0.02	0.01	0.03	0.01	0.04	0.01	0.02	0.01	0.08
2-Butanone	0.25	1.11	0.51	3.12	0.32	0.95	0.32	1.49	0.37	1.68	0.33	0.99
2-Hexanone	0.00	0.16	0.00	0.00	0.01	0.17	0.01	0.10	0.02	0.09	0.02	0.18
4-Methyl-2-Pentanone	0.03	1.01	0.00	0.00	0.01	0.55	0.00	0.09	0.01	0.09	0.01	0.13
Acetone	2.94	7.63	3.63	9.61	3.54	8.09	2.48	4.46	3.20	10.88	3.24	6.97
Acetonitrile	0.16	0.60	0.20	0.67	0.32	0.98	0.29	0.76	0.40	0.67	0.19	0.37
Acrylonitrile	0.84	12.06	0.15	0.48	1.15	4.97	0.83	1.37	0.85	2.13	0.03	0.18
Allyl Chloride	0.00	0.00	0.00	0.02	0.00	0.12	0.00	0.04	0.00	0.00	0.00	0.06
Benzene	0.34	3.27	0.55	2.89	0.38	1.99	0.43	2.40	0.77	19.18	0.33	1.57
Benzylchloride	0.00	0.02	0.00	0.02	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.04
Bromomethane	0.01	0.09	0.00	0.03	0.01	0.06	0.01	0.05	0.01	0.04	0.01	0.11
Carbon Disulfide	0.08	0.52	0.04	0.18	0.04	0.27	0.06	0.18	0.06	0.64	0.04	0.14
Carbon Tetrachloride	0.09	0.15	0.09	0.11	0.08	0.21	0.08	0.12	0.09	0.13	0.10	0.20
Chloroacetonitrile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chlorobenzene	0.00	0.12	0.01	0.05	0.01	0.16	0.01	0.04	0.01	0.03	0.01	0.09
Chlorobutane	0.00	0.00	0.00	0.03	0.00	0.03	0.00	0.03	0.00	0.01	0.00	0.06
Chloroethane	0.02	0.45	0.08	1.86	0.22	9.35	0.02	0.21	0.01	0.20	0.03	0.32
Chloroform	0.04	0.19	0.03	0.22	0.03	0.23	0.03	0.20	0.03	0.11	0.03	0.13
Chloromethane	0.68	1.11	0.66	0.98	0.69	1.00	0.72	1.13	0.74	1.16	0.73	0.97
cis-1,2-Dichloroethene	0.00	0.03	0.00	0.04	0.00	0.11	0.00	0.03	0.00	0.18	0.01	0.08
cis-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.06
Diethyl Ether	0.00	0.00	0.00	0.14	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.09
Ethyl Methacrylate	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.05
Ethylbenzene	0.03	0.12	0.04	0.23	0.05	0.48	0.05	0.38	0.04	0.50	0.05	0.39
Freon-11	0.24	0.37	0.24	0.29	0.24	0.31	0.24	0.31	0.26	0.34	0.24	0.35
Freon-113	0.07	0.11	0.08	0.10	0.08	0.13	0.08	0.12	0.08	0.10	0.09	0.20
Freon-114	0.02	0.03	0.02	0.03	0.02	0.05	0.02	0.05	0.02	0.03	0.03	0.13
Freon-12	0.51	0.79	0.50	0.57	0.51	0.65	0.50	0.58	0.54	0.70	0.53	0.71
m/p-Xylene	0.09	0.56	0.14	0.99	0.17	2.03	0.15	1.34	0.14	2.24	0.14	1.53
Methacrylonitrile	0.02	0.10	0.01	0.14	0.02	0.17	0.01	0.14	0.00	0.08	0.01	0.12
Methyl Acrylate	0.00	0.00	0.00	0.02	0.00	0.00	0.03	0.41	0.00	0.00	0.00	0.04
Methyl Methacrylate	0.00	0.01	0.00	0.00	0.00	0.05	0.00	0.03	0.00	0.02	0.00	0.04
Methylene Chloride	0.17	0.28	0.17	0.24	0.11	0.31	0.07	0.10	0.08	0.15	0.09	0.18
MTBE	0.01	0.41	0.01	0.08	0.00	0.09	0.00	0.07	0.00	0.00	0.00	0.07
Nitrobenzene	0.01	0.22	0.01	0.11	0.01	0.22	0.01	0.20	0.01	0.19	0.02	0.32
Nitropropane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.01	0.25
o-Xylene	0.03	0.18	0.05	0.30	0.07	0.95	0.05	0.37	0.06	1.14	0.05	0.36
Styrene	0.01	0.06	0.04	0.24	0.04	0.15	0.03	0.16	0.03	0.31	0.03	0.26
Tetrachloroethylene	0.03	0.24	0.02	0.09	0.02	0.33	0.03	0.30	0.03	0.35	0.03	0.18
Tetrahydrofuran	0.00	0.00	0.01	0.41	0.00	0.00	0.00	0.05	0.04	0.85	0.01	0.33
Toluene	0.32	2.64	0.57	3.61	0.43	1.91	0.58	7.37	0.61	13.04	0.38	2.49
trans-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.06
Trichloroethylene	0.07	0.55	0.05	1.01	0.03	0.34	0.03	0.50	0.03	0.25	0.06	0.28
Vinyl Chloride	0.09	1.07	0.06	0.56	0.11	2.20	0.29	2.76	0.10	0.76	0.11	1.38
n-Hexane	0.56	4.28	1.03	7.51	0.69	4.19	0.69	5.02	0.73	7.89	0.76	4.75
2,2,4-Trimethylpentane	0.08	0.37	0.08	0.37	0.08	0.32	0.09	0.41	0.08	0.31	0.06	0.40
Cumene	0.01	0.06	0.00	0.03	0.01	0.24	0.00	0.02	0.01	0.13	0.01	0.13
TNMOC (ppbC)	201	1097	217	986	215	1199	203	760	177	774	242	3909

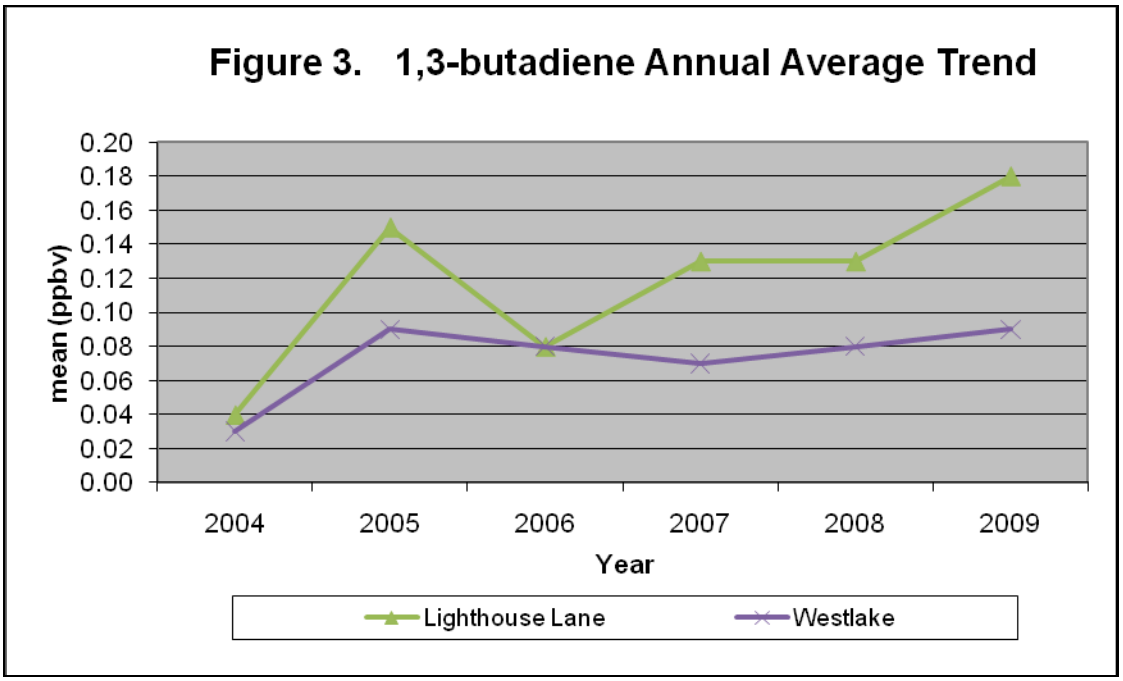
Table 2. Air Toxics Data (ppbv) for 24-Hour Samples at Westlake Site

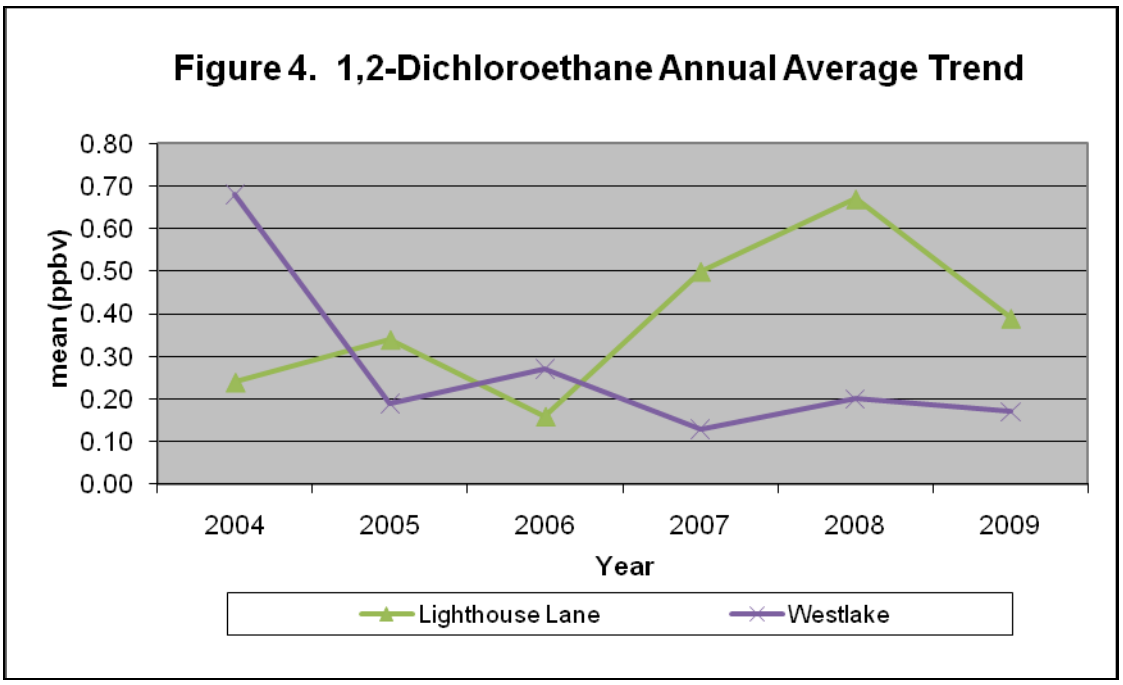
	2004		2005		2006		2007		2008		2009	
Compound \ Year	Mean	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean	Max.	Mean	Max.
1,1,1-Trichloroethane	0.19	1.83	0.10	0.70	0.14	1.49	0.08	0.70	0.06	0.56	0.10	0.64
1,1,2,2-Tetrachloroethane	0.00	0.02	0.00	0.01	0.00	0.02	0.00	0.02	0.00	0.07	0.00	0.03
1,1,2-Trichloroethane	0.01	0.10	0.01	0.06	0.01	0.10	0.00	0.04	0.00	0.07	0.01	0.12
1,1-Dichloroethane	0.05	1.12	0.04	0.36	0.06	0.57	0.03	0.41	0.01	0.08	0.06	0.94
1,1-Dichloroethene	0.01	0.18	0.00	0.04	0.00	0.06	0.01	0.09	0.01	0.12	0.00	0.03
1,2,4-Trichlorobenzene	0.01	0.06	0.01	0.07	0.04	0.13	0.04	0.15	0.02	0.17	0.02	0.10
1,2,4-Trimethylbenzene	0.03	0.12	0.04	0.11	0.05	0.18	0.04	0.10	0.03	0.10	0.14	4.51
1,2-Dibromoethane	0.00	0.00	0.00	0.02	0.01	0.04	0.01	0.04	0.00	0.07	0.00	0.02
1,2-Dichlorobenzene	0.00	0.03	0.00	0.01	0.00	0.02	0.01	0.03	0.01	0.07	0.00	0.03
1,2-Dichloroethane	0.68	9.53	0.19	1.16	0.27	2.45	0.13	0.98	0.20	0.86	0.17	0.90
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.08	0.00	0.00
1,3,5-Trimethylbenzene	0.01	0.03	0.01	0.03	0.02	0.08	0.02	0.04	0.01	0.07	0.05	1.34
1,3-Butadiene	0.03	0.19	0.09	0.62	0.08	0.22	0.07	0.45	0.08	0.32	0.09	0.46
1,3-Dichlorobenzene	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.02	0.01	0.07	0.00	0.03
1,3-Hexachlorobutadiene	0.01	0.04	0.01	0.06	0.03	0.10	0.03	0.13	0.02	0.09	0.01	0.04
1,4-Dichlorobenzene	0.00	0.02	0.01	0.02	0.01	0.03	0.01	0.04	0.01	0.07	0.01	0.04
2-Butanone	0.30	1.21	0.53	2.46	0.34	1.42	0.45	5.25	0.32	0.70	0.40	2.00
2-Hexanone	0.01	0.10	0.01	0.14	0.00	0.00	0.02	0.40	0.04	0.47	0.03	0.44
4-Methyl-2-Pentanone	0.01	0.63	0.00	0.00	0.00	0.04	0.01	0.15	0.04	0.35	0.01	0.18
Acetone	3.50	11.03	4.19	8.58	3.26	9.90	3.31	6.75	3.33	6.73	3.94	20.70
Acetonitrile	0.17	0.53	0.35	1.18	0.17	0.28	0.63	2.91	0.55	4.93	0.19	0.41
Acrylonitrile	0.12	0.37	0.23	1.36	0.08	0.26	0.17	0.87	0.26	1.52	0.41	0.79
Allyl Chloride	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.07	0.00	0.02
Benzene	0.20	1.45	0.36	1.35	0.31	0.84	0.33	1.36	0.34	1.32	0.25	0.95
Benzylchloride	0.00	0.02	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.06	0.00	0.03
Bromomethane	0.00	0.04	0.01	0.03	0.01	0.05	0.01	0.05	0.01	0.10	0.00	0.07
Carbon Disulfide	0.07	0.26	0.05	0.13	0.05	0.28	0.04	0.12	0.08	1.25	0.07	0.18
Carbon Tetrachloride	0.09	0.15	0.09	0.12	0.08	0.10	0.08	0.11	0.09	0.18	0.10	0.14
Chloroacetonitrile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00
Chlorobenzene	0.00	0.04	0.01	0.08	0.01	0.02	0.06	0.43	0.02	0.18	0.01	0.03
Chlorobutane	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.00	0.07	0.00	0.07
Chloroethane	0.05	0.66	0.10	3.48	0.07	0.55	0.02	0.49	0.02	0.22	0.04	0.25
Chloroform	0.09	0.86	0.04	0.09	0.04	0.14	0.03	0.27	0.03	0.12	0.03	0.11
Chloromethane	0.68	1.28	0.68	1.07	0.71	1.03	0.74	1.09	0.78	1.34	0.78	1.07
cis-1,2-Dichloroethene	0.00	0.10	0.00	0.00	0.00	0.04	0.00	0.04	0.00	0.09	0.00	0.03
cis-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.06	0.00	0.00
Diethyl Ether	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.04	0.00	0.08	0.00	0.00
Ethyl Methacrylate	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.07	0.01	0.16	0.00	0.00
Ethylbenzene	0.02	0.16	0.04	0.10	0.05	0.10	0.04	0.10	0.03	0.10	0.04	0.45
Freon-11	0.23	0.30	0.24	0.32	0.24	0.27	0.24	0.28	0.26	0.34	0.23	0.33
Freon-113	0.08	0.09	0.08	0.10	0.08	0.12	0.08	0.13	0.09	0.18	0.09	0.13
Freon-114	0.02	0.02	0.02	0.03	0.02	0.03	0.02	0.05	0.02	0.11	0.02	0.04
Freon-12	0.51	0.77	0.51	0.67	0.51	0.60	0.50	0.57	0.55	0.67	0.53	0.71
m/p-Xylene	0.07	0.48	0.11	0.39	0.12	0.27	0.10	0.29	0.08	0.28	0.15	2.85
Methacrylonitrile	0.16	2.93	0.00	0.09	0.00	0.05	0.00	0.04	0.45	7.96	0.01	0.09
Methyl Acrylate	0.00	0.23	0.00	0.04	0.00	0.02	0.01	0.16	0.00	0.14	0.01	0.12
Methyl Methacrylate	0.00	0.08	0.00	0.06	0.00	0.00	0.00	0.02	0.01	0.11	0.00	0.00
Methylene Chloride	0.17	0.22	0.18	0.54	0.11	0.25	0.07	0.13	0.08	0.19	0.08	0.12
MTBE	0.00	0.07	0.01	0.14	0.00	0.07	0.00	0.01	0.00	0.06	0.00	0.00
Nitrobenzene	0.00	0.15	0.00	0.06	0.01	0.21	0.01	0.34	0.05	1.14	0.02	0.41
Nitropropane	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.30
o-Xylene	0.03	0.19	0.05	0.13	0.05	0.12	0.04	0.12	0.03	0.13	0.07	1.55
Styrene	0.01	0.04	0.02	0.10	0.03	0.10	0.02	0.06	0.01	0.07	0.02	0.14
Tetrachloroethylene	0.03	0.37	0.02	0.14	0.04	0.65	0.02	0.09	0.02	0.11	0.03	0.12
Tetrahydrofuran	0.00	0.00	0.01	0.18	0.00	0.00	0.00	0.05	0.00	0.08	0.01	0.13
Toluene	0.20	1.74	0.35	1.12	0.32	0.79	0.27	0.67	0.24	0.62	0.25	0.71
trans-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.06	0.00	0.01
Trichloroethylene	0.07	0.47	0.07	0.40	0.04	0.38	0.02	0.19	0.04	0.17	0.06	0.26
Vinyl Chloride	0.12	0.80	0.10	0.78	0.16	1.07	0.16	1.12	0.09	0.76	0.15	1.00
n-Hexane	0.33	3.42	0.43	1.63	0.40	2.10	0.34	0.80	0.31	0.82	0.34	2.50
2,2,4-Trimethylpentane	0.07	0.21	0.07	0.18	0.07	0.21	0.07	0.16	0.10	0.38	0.07	0.54
Cumene	0.01	0.17	0.00	0.03	0.00	0.03	0.00	0.02	0.00	0.01	0.01	0.22
TNMOC (ppbC)	202	1261	225	804	138	411	317	2132	153	304	146	317

Among the monitored compounds, the annual averages of benzene, vinyl chloride, 1,3-butadiene, and 1,2-dichloroethane reach the highest percentage of the Louisiana standards at 20.5%, 61.7%, 42.9%, and 71.6% respectively. Their annual trends at Lighthouse Lane and Westlake are shown in Figure 1, 2, 3 and 4.









From January 1, 2004 to September 30, 2009, 180 and 80 event samples were collected at lighthouse Lane and Westlake, respectively. The results are shown in Table 3, and 4. High concentrations for 1,2-dichloroethane, 1,3-butadiene and vinyl chloride were caught in several event samples, but all of them were well below OSHA's PELs(permissible exposure limits).

Table 3. Air Toxics Data (ppbv) for Strike Samples at LHL Site from 2004-2009

Compounds	Total Strikes	Mean	Median	Maximum	98 Percentile
1,1,1-Trichloroethane	177	0.13	0.02	4.55	1.20
1,1,2,2-Tetrachloroethane	177	0.01	0.00	0.80	0.02
1,1,2-Trichloroethane	177	0.01	0.00	1.44	0.07
1,1-Dichloroethane	177	0.02	0.00	0.52	0.23
1,1-Dichloroethene	177	0.00	0.00	0.12	0.05
1,2,4-Trichlorobenzene	177	0.03	0.02	0.14	0.12
1,2,4-Trimethylbenzene	177	0.25	0.07	16.90	0.87
1,2-Dibromoethane	177	0.00	0.00	0.13	0.02
1,2-Dichlorobenzene	177	0.00	0.00	0.08	0.03
1,2-Dichloroethane	177	1.94	0.04	289.00	4.15
1,2-Dichloropropane	177	0.00	0.00	0.06	0.00
1,3,5-Trimethylbenzene	177	0.09	0.03	6.05	0.26
1,3-Butadiene	177	2.33	0.12	280.40	5.24
1,3-Dichlorobenzene	177	0.00	0.00	0.05	0.02
1,3-Hexachlorobutadiene	177	0.02	0.01	0.19	0.07
1,4-Dichlorobenzene	177	0.01	0.01	0.12	0.04
2-Butanone	177	0.90	0.33	16.88	8.37
2-Hexanone	177	0.01	0.00	0.21	0.15
4-Methyl-2-Pentanone	177	0.72	0.47	7.33	4.03
Acetone	177	3.88	3.59	14.18	10.57
Acetonitrile	177	0.16	0.15	0.59	0.44
Acrylonitrile	177	0.14	0.00	1.11	0.86
Allyl chloride	177	0.00	0.00	0.07	0.00
Benzene	177	3.36	0.86	32.79	17.35
Benzylchloride	177	0.00	0.00	0.04	0.03
Bromomethane	177	0.00	0.00	0.06	0.04
Carbon Disulfide	177	0.33	0.17	14.89	1.36
Carbon Tetrachloride	177	0.08	0.08	0.14	0.11
Chloroacetonitrile	177	0.00	0.00	0.05	0.00
Chlorobenzene	177	0.02	0.01	0.19	0.12
Chlorobutane	177	0.00	0.00	0.04	0.02
Chloroethane	177	0.19	0.00	25.60	0.64
Chloroform	177	0.04	0.03	0.34	0.13
Chloromethane	177	0.71	0.66	1.37	1.22
cis-1,2-Dichloroethene	177	0.00	0.00	0.36	0.03
cis-1,3-Dichloropropene	177	0.00	0.00	0.03	0.00
Diethyl Ether	177	0.00	0.00	0.14	0.05
Ethyl Methacrylate	177	0.00	0.00	0.08	0.00
Ethylbenzene	177	0.24	0.08	11.11	0.73
Freon-11	177	0.23	0.23	0.34	0.30
Freon-113	177	0.08	0.08	0.22	0.10
Freon-114	177	0.02	0.02	0.07	0.03
Freon-12	177	0.50	0.50	0.68	0.65
m/p-Xylene	177	1.06	0.25	44.40	3.60
Methacrylonitrile	177	0.03	0.00	0.48	0.27
Methyl Acrylate	177	0.06	0.00	7.69	0.26
Methyl Methacrylate	177	0.00	0.00	0.04	0.02
Methylene Chloride	177	0.14	0.15	0.30	0.27
MTBE	177	0.02	0.00	0.44	0.18
Nitrobenzene	177	0.02	0.00	0.59	0.27
Nitropropane	177	0.00	0.00	0.05	0.00
o-Xylene	177	0.34	0.10	16.46	1.19
Styrene	177	0.15	0.05	5.41	1.31
Tetrachloroethylene	177	0.04	0.01	2.63	0.18
Tetrahydrofuran	177	0.00	0.00	0.21	0.03
Toluene	177	4.28	1.20	81.24	18.72
trans-1,3-Dichloropropene	177	0.00	0.00	0.01	0.00
Trichloroethylene	177	0.07	0.02	2.76	0.51
Vinyl Chloride	177	0.18	0.00	5.31	1.57
n-Hexane	177	5.06	2.48	70.10	40.04
2,2,4-Trimethylpentane	177	0.41	0.23	6.51	2.51
Cumene	177	0.02	0.00	0.94	0.12
TNMOC (ppbC)	177	1442	1055	17668	5734

Table 4. Air Toxics Data (ppbv) for Strike Samples at Westlake Site from 2004-2009

Compounds	Total Strikes	Mean	Median	Maximum	98 Percentile
1,1,1-Trichloroethane	80	0.18	0.03	4.48	1.33
1,1,2,2-Tetrachloroethane	80	0.01	0.00	0.13	0.06
1,1,2-Trichloroethane	80	0.05	0.00	1.72	0.73
1,1-Dichloroethane	80	0.09	0.00	2.30	0.93
1,1-Dichloroethene	80	0.01	0.00	0.38	0.18
1,2,4-Trichlorobenzene	80	0.03	0.03	0.13	0.10
1,2,4-Trimethylbenzene	80	0.27	0.07	10.03	1.75
1,2-Dibromoethane	80	0.00	0.00	0.04	0.02
1,2-Dichlorobenzene	80	0.00	0.00	0.05	0.02
1,2-Dichloroethane	80	14.92	0.03	874.50	123.89
1,2-Dichloropropane	80	0.00	0.00	0.02	0.00
1,3,5-Trimethylbenzene	80	0.08	0.02	2.67	0.44
1,3-Butadiene	80	0.11	0.07	1.30	0.71
1,3-Dichlorobenzene	80	0.00	0.00	0.05	0.02
1,3-Hexachlorobutadiene	80	0.02	0.02	0.12	0.08
1,4-Dichlorobenzene	80	0.01	0.01	0.05	0.03
2-Butanone	80	0.58	0.32	8.47	3.34
2-Hexanone	80	0.03	0.00	0.97	0.27
4-Methyl-2-Pentanone	80	0.29	0.27	1.04	0.90
Acetone	80	4.43	3.85	21.00	15.89
Acetonitrile	80	0.15	0.16	0.53	0.30
Acrylonitrile	80	0.18	0.00	2.44	0.74
Allyl chloride	80	0.00	0.00	0.05	0.00
Benzene	80	1.27	0.66	11.54	4.18
Benzylchloride	80	0.00	0.00	0.02	0.01
Bromomethane	80	0.00	0.00	0.06	0.04
Carbon Disulfide	80	0.13	0.10	0.59	0.44
Carbon Tetrachloride	80	0.10	0.09	0.51	0.23
Chloroacetonitrile	80	0.00	0.00	0.00	0.00
Chlorobenzene	80	0.02	0.00	0.57	0.18
Chlorobutane	80	0.00	0.00	0.02	0.00
Chloroethane	80	0.29	0.00	10.49	4.16
Chloroform	80	0.10	0.03	1.99	1.37
Chloromethane	80	0.78	0.71	2.29	1.56
cis-1,2-Dichloroethene	80	0.01	0.00	0.33	0.06
cis-1,3-Dichloropropene	80	0.00	0.00	0.02	0.01
Diethyl Ether	80	0.00	0.00	0.07	0.02
Ethyl Methacrylate	80	0.00	0.00	0.18	0.02
Ethylbenzene	80	0.16	0.09	2.27	0.87
Freon-11	80	0.24	0.23	0.32	0.30
Freon-113	80	0.08	0.08	0.12	0.11
Freon-114	80	0.03	0.02	0.37	0.13
Freon-12	79	0.51	0.50	0.70	0.65
m/p-Xylene	80	0.60	0.29	9.57	2.98
Methacrylonitrile	80	0.03	0.00	0.32	0.26
Methyl Acrylate	80	0.01	0.00	0.55	0.02
Methyl Methacrylate	80	0.00	0.00	0.06	0.00
Methylene Chloride	80	0.13	0.10	0.56	0.34
MTBE	80	0.01	0.00	0.17	0.12
Nitrobenzene	80	0.02	0.00	1.08	0.16
Nitropropane	80	0.00	0.00	0.00	0.00
o-Xylene	80	0.22	0.10	4.22	1.15
Styrene	80	0.04	0.02	0.67	0.18
Tetrachloroethylene	80	0.03	0.01	0.30	0.17
Tetrahydrofuran	80	0.03	0.00	2.10	0.08
Toluene	80	1.53	0.76	11.71	8.37
trans-1,3-Dichloropropene	80	0.00	0.00	0.00	0.00
Trichloroethylene	80	0.06	0.02	0.77	0.43
Vinyl Chloride	80	3.24	0.01	199.00	20.84
n-Hexane	80	2.39	0.98	33.17	8.45
2,2,4-Trimethylpentane	80	0.36	0.16	3.70	2.71
Cumene	80	0.01	0.00	0.14	0.10
TNMOC (ppbC)	80	1060	731	8493	4420